Tuberolabium guamense

A total of approximately 7,093 *Tuberolabium guamense* (TuGu) have been located during recent surveys on Department of Defense (DoD) lands. The numbers are based on the following:

Data Source	Location	Number of Individuals
Final rule listing the species as threatened	Naval Munitions Site	1
University of Guam rare plant survey	HMU, Ritidian fence area and Mt. Alifan/Mt. Lamlam (251 at HMU, 105 at the Ritidian fence area and 188 at Mt. Alifan/Mt. Lamlam).	544
TuGu surveys conducted by DON biologists	Finegayan - outside the construction footprint; within forest enhancement area	1,162
DON high value tree surveys	Finegayan - outside the construction footprint	61
TuGu surveys conducted by DON biologists	Finegayan – within the construction footprint	270
DON high value tree surveys	Finegayan - within the construction footprint	5,055
Total known population on DoD lands (as of 30 Mar 2016)		**7,093**

We are able to avoid approximately 2,068 TuGu (29.2%) on DoD lands. This includes the plant within the Naval Munitions Site, the 544 plants found during the UoG rare plant surveys, 1,162 plants found within the forest enhancement area, 61 plants identified during the high value tree surveys, and 300 plants within the construction footprint. Figure 1 depicts the location of the 6,548 TuGu within the Finegayan area.

Through the design phase, we will continue to evaluate the number of orchids that can be avoided, which will depend on their exact location with respect to the full site investigations, topographic surveys, geotechnical investigations, munitions of explosive concern (MEC) surveys, and clearing, grubbing and grading requirements in accordance with the final design. However, at this time, it is not reasonable to commit to avoiding the remaining 5,025 plants within the project footprint.

We believe our avoidance of approximately 29% of the total population on DoD lands coupled with our conservation measures to: (1) conduct contractor education to ensure construction contractor personnel are informed of the biological resources in the project area, including special-status species, avoidance measures, and reporting requirements: and (2) salvage healthy plants and either transplant them immediately into nearby habitat or forest enhancement sites or house them in a native plant nursery until a suitable site can be identified provides a suitable and appropriate minimization measure. We have developed a scope of work that includes a performance standard of ensuring that a minimum of 50% survivorship of the orchids which includes one year of maintenance and monitoring.

Mariana eight spot butterfly

In the area of the MPMG range, there are 9 known occurrence locations of the Mariana eight spot butterfly (Figure 2). We are able to avoid 3 of the 9 locations in the area, as they are outside of the construction footprint. The other 6 locations are within the potential direct impact area of the MPMG range. This project is planned for fiscal year 2019 and until we have all the information on the confirmation of the exact location of the butterflies, full site investigations, topographic surveys, geotechnical investigations, MEC surveys, and development of the design to include the clearing, grubbing and grading requirements, we cannot determine the actual grades for the range and if the 25 ft (8 m) tall impact berm at the far end of the range can reasonably be constructed by omitting the 6 locations from the project footprint.

We would like to re-state that we have included extensive minimization and conservation measures for the protection of the Mariana eight spot butterfly to include:

1. Contractor education programs
2. Pre-construction butterfly and host plant surveys within suitable habitat within project boundaries.
3. Salvage host plant parts (not the entire plant) and provide them to an expert in the identification of the larvae or eggs of the Mariana eight spot butterfly for identification and propagation of Mariana eight spot butterflies.
4. Planting of the Mariana eight-spot host plants within the forest enhancement sites. The number of host plants that would be planted would be commensurate with the amount of host plants that are removed or developed over within the footprint of the LFTRC.

As stated in the final rule determining endangered status for the species, the Mariana eight-spot butterfly is dependent upon two relatively rare host plant species, both of which are susceptible to the effects of ungulate grazing. It is our understanding that the propagation of the host plants (*Procris pedunculata* and *Elatostema calcareum*) has been successful and that coupled with our forest enhancement activities that include ungulate fencing and eradication within the approximately 1,000 acres at Finegayan and propagation of the butterflies by a species expert should provide a greater conservation benefit to the species than is being accomplished for the species to date.

In addition, the 5,234 acres that has been set aside for durable habitat protection to support native habitat restoration and land management for the survival and recovery of the Guam Micronesian kingfisher also provides a conservation benefit to the known populations of Mariana eight spot butterfly on DoD land (eg. Haputo and Tarague areas).